

Date: Fri, 26 Nov 93 04:30:38 PST
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>
Errors-To: Ham-Space-Errors@UCSD.Edu
Reply-To: Ham-Space@UCSD.Edu
Precedence: Bulk
Subject: Ham-Space Digest V93 #91
To: Ham-Space

Ham-Space Digest Fri, 26 Nov 93 Volume 93 : Issue 91

Today's Topics:

ANS-324 BULLETINS
ORBS\$323.2L.AMSAT
ORBS\$323.MICRO.AMSAT
ORBS\$323.MISC.AMSAT
ORBS\$323.OSCAR.AMSAT
ORBS\$323.WEATH.AMSAT

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Sun, 21 Nov 1993 17:44:12 MST
From: nntp.ucsb.edu!library.ucla.edu!news.mic.ucla.edu!unixg.ubc.ca!
nntp.cs.ubc.ca!alberta!ugc!nebulus!ve6mgs!usenet@network.ucsd.edu
Subject: ANS-324 BULLETINS
To: ham-space@ucsd.edu

SB SAT @ AMSAT \$ANS-324.01
MORE DOVE TELEMETRY FORMATS

HR AMSAT NEWS SERVICE BULLETIN 324.01 FROM AMSAT HQ
SILVER SPRING, MD NOVEMBER 20, 1993
TO ALL RADIO AMATEURS BT
BID: \$ANS-324.01

NK6K Explains More Of DOVE's Telemetry Format

The LSTAT line is sent by the loader portion of PHT (the loader/command/

telemetry task). Its purpose is to show the state of the software loader process so that if something goes wrong during upload, the DOVE ground command stations can tell what needs to be done to continue the process.

The LSTAT line comes in two types, as shown below.

I P:0xhhhh o:n l:nnnn f:nnnn, d:n st:n\

A: 0xhhhh, P:0xhhhh, o:n l:nnnn f:nnnn, d:n st:n

I - means there is no software load in progress (inactive)

A: - means a software load is in progress (active). hhhh is the segment address of the program being loaded.

P: - the segment of the running program (PHT). The initial load of PHT is always at 0x3000. Any other address here means PHT has been reloaded.

o: - The number of times the HDLC output queue was full when PHT tried to send a frame. This is left over from debugging the only major bug found in the I/O drivers since launch. A bug occasionally caused a 65,535 byte frame to be sent, filling the output queue for nine minutes. This should always be zero.

l: - The largest free memory block, in decimal paragraphs. To find the number of free bytes in the largest block, multiply this number by 16. This number shows the largest program that can be loaded at that time.

f: - The total amount of free memory, in decimal paragraphs.

d: - The digipeat flag, 1 is digipeat on, 0 is digipeat off. (Will always be off for DOVE)

st:- The task number of the last task loaded.

[The AMSAT News Service (ANS) would like to thank Harold Price (NK6K) for this bulletin item.]

/EX

SB SAT @ AMSAT \$ANS-324.02
AMSAT OPS NET SCHEDULE

HR AMSAT NEWS SERVICE BULLETIN 324.02 FROM AMSAT HQ
SILVER SPRING, MD NOVEMBER 20, 1993
TO ALL RADIO AMATEURS BT
BID: \$ANS-324.02

Current AMSAT Operations Net Schedule For A0-13

AMSAT Operations Nets are planned for the following times. Mode-B Nets are conducted on A0-13 on a downlink frequency of 145.950 MHz. If, at the start of the OPS Net, the frequency of 145.950 MHz is being used for a QSO, OPS Net enthusiasts are asked to move to the alternate frequency of 145.955 MHz.

Date	UTC	Mode	Phs	NCS	Alt NCS
28-Nov-93	0230	B	39	WJ9F	VE2LVC
12-Dec-93	0435	B	180	W9ODI	WB6LL0
3-Jan-94	0200	B	160	WA5ZIB	N7NQM

Any stations with information on current events would be most welcomed. Also, those interested in discussing technical issues or who have questions about any particular aspect of OSCAR statellite operations, are encouraged to join the OPS Nets. In the unlikely event that either the Net Control Station (NCS) or the alternate NCS do not call on frequency, any participant is invited to act as the NCS.

Slow Scan Television on A0-13

SSTV sessions will be held on immediately after the OPS Nets a downlink on a Mode-B downlink frequency 145.960 MHz.

/EX
SB SAT @ AMSAT \$ANS-324.03
WEEKLY OSCAR STATUS REPORTS

HR AMSAT NEWS SERVICE BULLETIN 324.03 FROM AMSAT HQ
SILVER SPRING, MD NOVEMBER 20, 1993
TO ALL RADIO AMATEURS BT
BID: \$ANS-324.03

Weekly OSCAR Status Reports: 20-NOV-93

A0-13: Current Transponder Operating Schedule:
L QST *** A0-13 TRANSPONDER SCHEDULE *** 1993 Nov 15-Jan 31
Mode-B : MA 0 to MA 95 ! / Eclipses, max
Mode-B : MA 95 to MA 180 ! OFF Dec 07 - 24. < duration 136
Mode-B : MA 180 to MA 218 ! \ minutes.
Mode-S : MA 218 to MA 220 !<- S beacon only
Mode-S : MA 220 to MA 230 !<- S transponder; B trsp. is OFF
Mode-BS : MA 230 to MA 256 ! Blon/Blat 240/-5

Omnis : MA 250 to MA 150 ! Move to attitude 180/0, Jan 31
A0-13 will experience another partial solar eclipse on 1993 Dec 13 [Mon].
It sees the Moon eclipse the Sun from 10:09 - 10:59 UTC with a maximum 53%
obscuration at 1034 utc. This is Orbit #4211 MA 73-92. The encounter will
be "visible" on the telemetry to stations throughout the USA and Japan.
Reports would be appreciated. Stations who observed this spectacular
eclipse of Nov 13 will know what to look for. Eclipses of sun by earth
commence on Dec 07 [Tue] and continue until Dec 24 [Fri]. The eclipses are
of course total. The maximum lasts 2 hours and 16 minutes, and is the
longest A0-13 has ever experienced. The telemetry during these outages is
very interesting, particularly the spacecraft temperatures; some reach
-40 C. The Mode-B transponder will be OFF from MA 95 to 180 during this
two week period. [G3RUH/DB2OS/VK5AGR]

DOVE: TLM has been copied moderately well on 145.825 MHz, with much
stronger signal levels on the S-band beacon. Please send any
telemetry that you capture to PY2BJO at his INTERNET address of
py2bjo@amsat.org. [W7IUV]

A0-16: Operating normally. [WH6I]

U0-22: Operating normally. [WH6I]

L0-19: Operating normally. [WH6I]

K0-23: Up and running. Busy as usual. There are a number of images.
[WH6I]

K0-25: File system is up but not open for uploads. It appears that the
satellite has taken and EIS image, but it is not available. [WH6I]

I0-26: Up and running with a lot of activity. [WH6I]

F0-20: The F0-20 Mode JA period on the 17-18th of November provided strong
downlink and beacon signals but only moderate activity during the
passes that were visible. The following is the F0-20 operating
schedule:

Analog mode: 24-Nov-93 08:20 -to- 25-Nov-93 8:38 UTC
01-Dec-93 08:43 -to- 07-Dec-93 7:16 UTC
15-Dec-93 07:41 -to- 22-Dec-93 8:05 UTC

Digital mode: otherwise noted above. In December, analog mode and
digital mode will be ON alternately for a week, respectively.
[W7IUV & JJ1WTK]

RS-10: RS-10 has had excellent downlink signals, but only moderate activity
during the last week. This bird produces more fun per pass than any
other amateur satellite in orbit. [W7IUV]

The AMSAT NEWS Service (ANS) is looking for volunteers to contribute weekly OSCAR status reports. If you have a favorite OSCAR which you work on a regular basis and would like to contribute to this bulletin, please send your observations to WD0HHU at his CompuServe address of 70524,2272, on INTERNET at wd0hhu@amsat.org, or to his local packet BBS in the Denver, CO area, WD0HHU @ WOLJF.#NECO.CO.USA.NOAM. Also, if you find that the current set of orbital elements are not generating the correct AOS/LOS times at your QTH, PLEASE INCLUDE THAT INFORMATION AS WELL. The information you provide will be of value to all OSCAR enthusiasts.

/EX

Date: Fri, 19 Nov 1993 06:49:00 MST
From: nntp.ucsb.edu!library.ucla.edu!europa.eng.gtefsd.com!howland.reston.ans.net!
math.ohio-state.edu!cyber2.cyberstore.ca!nntp.cs.ubc.ca!alberta!ugc!nebulus!
ve6mgs!usenet@network.ucsd.edu
Subject: ORBS\$323.2L.AMSAT
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-323.N
2Line Orbital Elements 323.AMSAT

HR AMSAT ORBITAL ELEMENTS FOR AMATEUR SATELLITES IN NASA FORMAT
FROM WA5QGD FORT WORTH,TX November 19, 1993
BID: \$ORBS-323.N

DECODE 2-LINE ELSETS WITH THE FOLLOWING KEY:

1 AAAAAU 00 0 0 BBBB.BBBBBBBB .CCCCCCC 00000-0 00000-0 0 DDDZ
2 AAAAA EEE.EEEE FFF.FFFF GGGGGGG HHH.HHHH III.IIII JJ.JJJJJJJJKKKKZ
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

TO ALL RADIO AMATEURS BT

A0-10

1 14129U 83058B 93321.57691393 -.00000112 00000-0 10000-3 0 2118
2 14129 27.1956 355.7539 6019652 131.0023 299.1524 2.05880635 78414

U0-11

1 14781U 84021B 93320.59791365 .00000224 00000-0 41964-4 0 6126
2 14781 97.7971 340.1743 0010901 227.3657 132.6634 14.69084435519091

RS-10/11

1 18129U 87054A 93320.53837545 .00000061 00000-0 60485-4 0 8120
2 18129 82.9209 126.0240 0010352 256.4589 103.5413 13.72326438320740

A0-13

1 19216U 88051B 93315.34314830 -.00000053 00000-0 10000-4 0 8137
2 19216 57.8997 284.7483 7226538 327.9276 3.4613 2.09719999 41435

FO-20

1 20480U 90013C 93310.07362541 -.00000005 00000-0 14874-4 0 6071
 2 20480 99.0217 139.2984 0541030 125.0547 240.2545 12.83221816175512

AO-21

1 21087U 91006A 93320.47796564 .00000084 00000-0 82657-4 0 3683

2 21087 82.9418 300.1208 0034449 319.1873 40.6687 13.74528168140362

RS-12/13

1 21089U 91007A 93317.61990766 .00000004 00000-0 -23873-5 0 6129

2 21089 82.9233 171.3110 0029494 351.2997 8.7626 13.74029180139048

ARSENE

1 22654U 93031B 93319.82294071 -.00000052 00000-0 10000-3 0 2099

2 22654 1.4256 113.1022 2930832 161.7997 211.8626 1.42202608 2728

UO-14

1 20437U 90005B 93320.70053268 .00000071 00000-0 35429-4 0 9128

2 20437 98.6062 43.2321 0011712 93.9046 266.3482 14.29803677199228

AO-16

1 20439U 90005D 93320.27451247 .00000064 00000-0 32755-4 0 7120

2 20439 98.6124 43.8287 0012274 95.5349 264.7257 14.29860785199173

DO-17

1 20440U 90005E 93320.66928486 .00000060 00000-0 31121-4 0 7121

2 20440 98.6144 44.4763 0012250 94.2945 265.9628 14.29997894199240

W0-18

1 20441U 90005F 93320.22118847 .00000057 00000-0 29710-4 0 7134

2 20441 98.6142 44.0490 0012764 95.8251 264.4402 14.29975696199182

LO-19

1 20442U 90005G 93320.70317511 .00000061 00000-0 31205-4 0 7123

2 20442 98.6151 44.7345 0013139 93.7468 266.5215 14.30068015199267

UO-22

1 21575U 91050B 93320.68042724 .00000105 00000-0 42463-4 0 4124

2 21575 98.4578 34.2356 0006986 200.1876 159.9027 14.36865218122562

KO-23

1 22077U 92052B 93320.59051504 .00000000 00000-0 10000-3 0 3091

2 22077 66.0900 5.1031 0005093 341.0856 18.9960 12.86281800 59446

AO-27

1 22825U 93061C 93320.66241511 .00000070 00000-0 36625-4 0 2111

2 22825 98.6771 33.3777 0009303 106.2143 254.0076 14.27590086 7363

IO-26

1 22826U 93061D 93320.65872634 .00000073 00000-0 37587-4 0 2129

2 22826 98.6768 33.3808 0009869 107.8468 252.3794 14.27692506 7367

KO-25

1 22830U 93061H 93319.73628661 .00000064 00000-0 33726-4 0 2121

2 22830 98.5788 31.9792 0012486 82.0123 278.2466 14.28016160 7236

NOAA-9

1 15427U 84123A 93321.67817478 .00000105 00000-0 66146-4 0 6128

2 15427 99.0821 4.3682 0015882 95.7490 264.5523 14.13562457460466

NOAA-10

1 16969U 86073A 93315.75032400 .00000081 00000-0 42765-4 0 5091

2 16969 98.5140 326.3695 0012248 244.0314 115.9574 14.24842726371642

MET-2/17

1 18820U 88005A 93319.86072672 .00000065 00000-0 52347-4 0 2116
2 18820 82.5421 78.2816 0017893 61.8037 298.4910 13.84697554292837

MET-3/2

1 19336U 88064A 93319.83299665 .00000043 00000-0 10000-3 0 2119
2 19336 82.5384 114.6617 0017926 77.8342 282.4811 13.16962335255171

NOAA-11

1 19531U 88089A 93315.67695101 .00000165 00000-0 99084-4 0 4090
2 19531 99.1508 294.5292 0012515 27.3413 332.8509 14.12931327264500

MET-2/18

1 19851U 89018A 93320.51300057 .00000045 00000-0 35160-4 0 2124
2 19851 82.5191 313.4772 0015680 100.7230 259.5690 13.84349177238266

MET-3/3

1 20305U 89086A 93320.32104910 .00000043 00000-0 10000-3 0 9135
2 20305 82.5525 57.5423 0017403 95.7518 264.5640 13.16021908195110

MET-2/19

1 20670U 90057A 93320.64092393 .00000015 00000-0 79036-5 0 7128
2 20670 82.5491 17.2997 0016711 28.5586 331.6512 13.84181803171211

FY-1/2

1 20788U 90081A 93314.27490495 .00000352 00000-0 25587-3 0 8161
2 20788 98.8528 336.2622 0014224 264.8255 95.1288 14.01329924163048

MET-2/20

1 20826U 90086A 93320.47980517 .00000052 00000-0 42267-4 0 7113
2 20826 82.5249 315.2181 0011921 288.0238 71.9627 13.83563968158341

MET-3/4

1 21232U 91030A 93320.51833216 .00000043 00000-0 10000-3 0 6155
2 21232 82.5409 319.9466 0013471 2.5209 357.5653 13.16456371123379

NOAA-12

1 21263U 91032A 93315.68793624 .00000176 00000-0 87457-4 0 8162
2 21263 98.6427 343.0215 0013434 143.1680 217.0407 14.22331177129619

MET-3/5

1 21655U 91056A 93320.38880675 .00000043 00000-0 10000-3 0 6125
2 21655 82.5551 267.0163 0014334 12.2322 347.9178 13.16825934108458

MET-2/21

1 22782U 93055A 93320.66678128 .00000033 00000-0 25012-4 0 2111
2 22782 82.5521 14.8526 0023798 100.3379 260.0455 13.82991168 10713

MIR

1 16609U 86017A 93321.57070583 .00007939 00000-0 10816-3 0 5866
2 16609 51.6139 168.8603 0005214 358.7317 0.6246 15.58545846443041

HUBBLE

1 20580U 90037B 93320.38852573 .00000748 00000-0 63165-4 0 3620
2 20580 28.4687 163.2233 0004748 200.0009 160.0464 14.92922012194272

GRO

1 21225U 91027B 93321.24933334 .00018416 00000-0 19624-3 0 2224
2 21225 28.4618 264.6526 0074975 90.1642 270.7885 15.58731637 24209

UARS

1 21701U 91063B 93315.59270845 -.00001996 00000-0 -16511-3 0 4125
2 21701 56.9842 310.8939 0005642 92.8950 267.4094 14.96195848118366

POSAT

1 22829U 93 61 G 93289.11726978 .00000072 00000-0 37231-4 0 2042
2 22829 98.6763 2.0610 0010043 184.4594 175.6498 14.27975951 2862
/EX

Date: Fri, 19 Nov 1993 06:40:00 MST

From: nntp.ucsb.edu!library.ucla.edu!news.mic.ucla.edu!unixg.ubc.ca!
nntp.cs.ubc.ca!alberta!ugc!nebulus!ve6mgs!usenet@network.ucsd.edu
Subject: ORBS\$323.MICRO.AMSAT
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-323.D
Orbital Elements 323.MICROS

HR AMSAT ORBITAL ELEMENTS FOR THE MICROSATS
FROM WA5QGD FORT WORTH,TX November 19, 1993
BID: \$ORBS-323.D
TO ALL RADIO AMATEURS BT

Satellite: U0-14

Catalog number: 20437
Epoch time: 93320.70053268
Element set: 912
Inclination: 98.6062 deg
RA of node: 43.2321 deg
Eccentricity: 0.0011712
Arg of perigee: 93.9046 deg
Mean anomaly: 266.3482 deg
Mean motion: 14.29803677 rev/day
Decay rate: 7.1e-07 rev/day^2
Epoch rev: 19922
Checksum: 290

Satellite: A0-16

Catalog number: 20439
Epoch time: 93320.27451247
Element set: 712
Inclination: 98.6124 deg
RA of node: 43.8287 deg
Eccentricity: 0.0012274
Arg of perigee: 95.5349 deg
Mean anomaly: 264.7257 deg
Mean motion: 14.29860785 rev/day
Decay rate: 6.4e-07 rev/day^2
Epoch rev: 19917
Checksum: 328

Satellite: D0-17
Catalog number: 20440
Epoch time: 93320.66928486
Element set: 712
Inclination: 98.6144 deg
RA of node: 44.4763 deg
Eccentricity: 0.0012250
Arg of perigee: 94.2945 deg
Mean anomaly: 265.9628 deg
Mean motion: 14.29997894 rev/day
Decay rate: 6.0e-07 rev/day^2
Epoch rev: 19924
Checksum: 339

Satellite: W0-18
Catalog number: 20441
Epoch time: 93320.22118847
Element set: 713
Inclination: 98.6142 deg
RA of node: 44.0490 deg
Eccentricity: 0.0012764
Arg of perigee: 95.8251 deg
Mean anomaly: 264.4402 deg
Mean motion: 14.29975696 rev/day
Decay rate: 5.7e-07 rev/day^2
Epoch rev: 19918
Checksum: 313

Satellite: L0-19
Catalog number: 20442
Epoch time: 93320.70317511
Element set: 712
Inclination: 98.6151 deg
RA of node: 44.7345 deg
Eccentricity: 0.0013139
Arg of perigee: 93.7468 deg
Mean anomaly: 266.5215 deg
Mean motion: 14.30068015 rev/day
Decay rate: 6.1e-07 rev/day^2
Epoch rev: 19926
Checksum: 285

Satellite: U0-22
Catalog number: 21575
Epoch time: 93320.68042724
Element set: 412
Inclination: 98.4578 deg

RA of node: 34.2356 deg
Eccentricity: 0.0006986
Arg of perigee: 200.1876 deg
Mean anomaly: 159.9027 deg
Mean motion: 14.36865218 rev/day
Decay rate: 1.05e-06 rev/day^2
Epoch rev: 12256
Checksum: 307

Satellite: K0-23
Catalog number: 22077
Epoch time: 93320.59051504
Element set: 309
Inclination: 66.0900 deg
RA of node: 5.1031 deg
Eccentricity: 0.0005093
Arg of perigee: 341.0856 deg
Mean anomaly: 18.9960 deg
Mean motion: 12.86281800 rev/day
Decay rate: .00000000 rev/day^2
Epoch rev: 5944
Checksum: 250

Satellite: A0-27
Catalog number: 22825
Epoch time: 93320.66241511
Element set: 211
Inclination: 98.6771 deg
RA of node: 33.3777 deg
Eccentricity: 0.0009303
Arg of perigee: 106.2143 deg
Mean anomaly: 254.0076 deg
Mean motion: 14.27590086 rev/day
Decay rate: 7.0e-07 rev/day^2
Epoch rev: 736
Checksum: 275

Satellite: I0-26
Catalog number: 22826
Epoch time: 93320.65872634
Element set: 212
Inclination: 98.6768 deg
RA of node: 33.3808 deg
Eccentricity: 0.0009869
Arg of perigee: 107.8468 deg
Mean anomaly: 252.3794 deg
Mean motion: 14.27692506 rev/day
Decay rate: 7.3e-07 rev/day^2

Epoch rev: 736
Checksum: 337

Satellite: K0-25
Catalog number: 22830
Epoch time: 93319.73628661
Element set: 212
Inclination: 98.5788 deg
RA of node: 31.9792 deg
Eccentricity: 0.0012486
Arg of perigee: 82.0123 deg
Mean anomaly: 278.2466 deg
Mean motion: 14.28016160 rev/day
Decay rate: 6.4e-07 rev/day^2
Epoch rev: 723
Checksum: 301

/EX

Date: Fri, 19 Nov 1993 06:46:00 MST
From: nntp.ucsb.edu!library.ucla.edu!news.mic.ucla.edu!unixg.ubc.ca!
nntp.cs.ubc.ca!alberta!ugc!nebulus!ve6mgs!usenet@network.ucsd.edu
Subject: ORBS\$323.MISC.AMSAT
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-323.M
Orbital Elements 323.MISC

HR AMSAT ORBITAL ELEMENTS FOR MANNED AND MISCELLANEOUS SATELLITES
FROM WA5QGD FORT WORTH,TX November 19, 1993
BID: \$ORBS-323.M
TO ALL RADIO AMATEURS BT

Satellite: MIR
Catalog number: 16609
Epoch time: 93321.57070583
Element set: 586
Inclination: 51.6139 deg
RA of node: 168.8603 deg
Eccentricity: 0.0005214
Arg of perigee: 358.7317 deg
Mean anomaly: 0.6246 deg
Mean motion: 15.58545846 rev/day
Decay rate: 7.939e-05 rev/day^2
Epoch rev: 44304
Checksum: 317

Satellite: HUBBLE
Catalog number: 20580
Epoch time: 93320.38852573
Element set: 362
Inclination: 28.4687 deg
RA of node: 163.2233 deg
Eccentricity: 0.0004748
Arg of perigee: 200.0009 deg
Mean anomaly: 160.0464 deg
Mean motion: 14.92922012 rev/day
Decay rate: 7.48e-06 rev/day^2
Epoch rev: 19427
Checksum: 277

Satellite: GRO
Catalog number: 21225
Epoch time: 93321.24933334
Element set: 222
Inclination: 28.4618 deg
RA of node: 264.6526 deg
Eccentricity: 0.0074975
Arg of perigee: 90.1642 deg
Mean anomaly: 270.7885 deg
Mean motion: 15.58731637 rev/day
Decay rate: 1.8416e-04 rev/day^2
Epoch rev: 2420
Checksum: 299

Satellite: UARS
Catalog number: 21701
Epoch time: 93315.59270845
Element set: 412
Inclination: 56.9842 deg
RA of node: 310.8939 deg
Eccentricity: 0.0005642
Arg of perigee: 92.8950 deg
Mean anomaly: 267.4094 deg
Mean motion: 14.96195848 rev/day
Decay rate: -1.996e-05 rev/day^2
Epoch rev: 11836
Checksum: 336

Satellite: POSAT
Catalog number: 22829
Epoch time: 93289.11726978
Element set: 204
Inclination: 98.6763 deg

RA of node: 2.0610 deg
Eccentricity: 0.0010043
Arg of perigee: 184.4594 deg
Mean anomaly: 175.6498 deg
Mean motion: 14.27975951 rev/day
Decay rate: 7.2e-07 rev/day^2
Epoch rev: 286
Checksum: 317

/EX

Date: Fri, 19 Nov 1993 06:37:00 MST
From: nntp.ucsb.edu!library.ucla.edu!news.mic.ucla.edu!unixg.ubc.ca!
nntp.cs.ubc.ca!alberta!ugc!nebulus!ve6mgs!usenet@network.ucsd.edu
Subject: ORBS\$323.OSCAR.AMSAT
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-323.0
Orbital Elements 323.OSCAR

HR AMSAT ORBITAL ELEMENTS FOR OSCAR SATELLITES
FROM WA5QGD FORT WORTH,TX November 19, 1993
BID: \$ORBS-323.0
TO ALL RADIO AMATEURS BT

Satellite: A0-10
Catalog number: 14129
Epoch time: 93321.57691393
Element set: 211
Inclination: 27.1956 deg
RA of node: 355.7539 deg
Eccentricity: 0.6019652
Arg of perigee: 131.0023 deg
Mean anomaly: 299.1524 deg
Mean motion: 2.05880635 rev/day
Decay rate: -1.12e-06 rev/day^2
Epoch rev: 7841
Checksum: 293

Satellite: U0-11
Catalog number: 14781
Epoch time: 93320.59791365
Element set: 612
Inclination: 97.7971 deg
RA of node: 340.1743 deg
Eccentricity: 0.0010901

Arg of perigee: 227.3657 deg
Mean anomaly: 132.6634 deg
Mean motion: 14.69084435 rev/day
Decay rate: 2.24e-06 rev/day^2
Epoch rev: 51909
Checksum: 310

Satellite: RS-10/11
Catalog number: 18129
Epoch time: 93320.53837545
Element set: 812
Inclination: 82.9209 deg
RA of node: 126.0240 deg
Eccentricity: 0.0010352
Arg of perigee: 256.4589 deg
Mean anomaly: 103.5413 deg
Mean motion: 13.72326438 rev/day
Decay rate: 6.1e-07 rev/day^2
Epoch rev: 32074
Checksum: 277

Satellite: A0-13
Catalog number: 19216
Epoch time: 93315.34314830
Element set: 813
Inclination: 57.8997 deg
RA of node: 284.7483 deg
Eccentricity: 0.7226538
Arg of perigee: 327.9276 deg
Mean anomaly: 3.4613 deg
Mean motion: 2.09719999 rev/day
Decay rate: -5.3e-07 rev/day^2
Epoch rev: 4143
Checksum: 336

Satellite: F0-20
Catalog number: 20480
Epoch time: 93310.07362541
Element set: 607
Inclination: 99.0217 deg
RA of node: 139.2984 deg
Eccentricity: 0.0541030
Arg of perigee: 125.0547 deg
Mean anomaly: 240.2545 deg
Mean motion: 12.83221816 rev/day
Decay rate: -5.0e-08 rev/day^2
Epoch rev: 17551
Checksum: 267

Satellite: A0-21
Catalog number: 21087
Epoch time: 93320.47796564
Element set: 368
Inclination: 82.9418 deg
RA of node: 300.1208 deg
Eccentricity: 0.0034449
Arg of perigee: 319.1873 deg
Mean anomaly: 40.6687 deg
Mean motion: 13.74528168 rev/day
Decay rate: 8.4e-07 rev/day^2
Epoch rev: 14036
Checksum: 318

Satellite: RS-12/13
Catalog number: 21089
Epoch time: 93317.61990766
Element set: 612
Inclination: 82.9233 deg
RA of node: 171.3110 deg
Eccentricity: 0.0029494
Arg of perigee: 351.2997 deg
Mean anomaly: 8.7626 deg
Mean motion: 13.74029180 rev/day
Decay rate: 4.0e-08 rev/day^2
Epoch rev: 13904
Checksum: 305

Satellite: ARSENE
Catalog number: 22654
Epoch time: 93319.82294071
Element set: 209
Inclination: 1.4256 deg
RA of node: 113.1022 deg
Eccentricity: 0.2930832
Arg of perigee: 161.7997 deg
Mean anomaly: 211.8626 deg
Mean motion: 1.42202608 rev/day
Decay rate: -5.2e-07 rev/day^2
Epoch rev: 272
Checksum: 263

/EX

Date: Fri, 19 Nov 1993 06:44:00 MST

From: nntp.ucsb.edu!library.ucla.edu!news.mic.ucla.edu!unixg.ubc.ca!
nntp.cs.ubc.ca!alberta!ugc!nebulus!ve6mgs!usenet@network.ucsd.edu
Subject: ORBS\$323.WEATH.AMSAT
To: ham-space@ucsd.edu

SB KEPS @ AMSAT \$ORBS-323.W
Orbital Elements 323.WEATHER

HR AMSAT ORBITAL ELEMENTS FOR WEATHER SATELLITES
FROM WA5QGD FORT WORTH,TX November 19, 1993
BID: \$ORBS-323.W
TO ALL RADIO AMATEURS BT

Satellite: NOAA-9
Catalog number: 15427
Epoch time: 93321.67817478
Element set: 612
Inclination: 99.0821 deg
RA of node: 4.3682 deg
Eccentricity: 0.0015882
Arg of perigee: 95.7490 deg
Mean anomaly: 264.5523 deg
Mean motion: 14.13562457 rev/day
Decay rate: 1.05e-06 rev/day^2
Epoch rev: 46046
Checksum: 314

Satellite: NOAA-10
Catalog number: 16969
Epoch time: 93315.75032400
Element set: 509
Inclination: 98.5140 deg
RA of node: 326.3695 deg
Eccentricity: 0.0012248
Arg of perigee: 244.0314 deg
Mean anomaly: 115.9574 deg
Mean motion: 14.24842726 rev/day
Decay rate: 8.1e-07 rev/day^2
Epoch rev: 37164
Checksum: 297

Satellite: MET-2/17
Catalog number: 18820
Epoch time: 93319.86072672
Element set: 211
Inclination: 82.5421 deg
RA of node: 78.2816 deg
Eccentricity: 0.0017893

Arg of perigee: 61.8037 deg
Mean anomaly: 298.4910 deg
Mean motion: 13.84697554 rev/day
Decay rate: 6.5e-07 rev/day^2
Epoch rev: 29283
Checksum: 334

Satellite: MET-3/2
Catalog number: 19336
Epoch time: 93319.83299665
Element set: 211
Inclination: 82.5384 deg
RA of node: 114.6617 deg
Eccentricity: 0.0017926
Arg of perigee: 77.8342 deg
Mean anomaly: 282.4811 deg
Mean motion: 13.16962335 rev/day
Decay rate: 4.3e-07 rev/day^2
Epoch rev: 25517
Checksum: 319

Satellite: NOAA-11
Catalog number: 19531
Epoch time: 93315.67695101
Element set: 409
Inclination: 99.1508 deg
RA of node: 294.5292 deg
Eccentricity: 0.0012515
Arg of perigee: 27.3413 deg
Mean anomaly: 332.8509 deg
Mean motion: 14.12931327 rev/day
Decay rate: 1.65e-06 rev/day^2
Epoch rev: 26450
Checksum: 291

Satellite: MET-2/18
Catalog number: 19851
Epoch time: 93320.51300057
Element set: 212
Inclination: 82.5191 deg
RA of node: 313.4772 deg
Eccentricity: 0.0015680
Arg of perigee: 100.7230 deg
Mean anomaly: 259.5690 deg
Mean motion: 13.84349177 rev/day
Decay rate: 4.5e-07 rev/day^2
Epoch rev: 23826
Checksum: 288

Satellite: MET-3/3
Catalog number: 20305
Epoch time: 93320.32104910
Element set: 913
Inclination: 82.5525 deg
RA of node: 57.5423 deg
Eccentricity: 0.0017403
Arg of perigee: 95.7518 deg
Mean anomaly: 264.5640 deg
Mean motion: 13.16021908 rev/day
Decay rate: 4.3e-07 rev/day^2
Epoch rev: 19511
Checksum: 262

Satellite: MET-2/19
Catalog number: 20670
Epoch time: 93320.64092393
Element set: 712
Inclination: 82.5491 deg
RA of node: 17.2997 deg
Eccentricity: 0.0016711
Arg of perigee: 28.5586 deg
Mean anomaly: 331.6512 deg
Mean motion: 13.84181803 rev/day
Decay rate: 1.5e-07 rev/day^2
Epoch rev: 17121
Checksum: 291

Satellite: FY-1/2
Catalog number: 20788
Epoch time: 93314.27490495
Element set: 816
Inclination: 98.8528 deg
RA of node: 336.2622 deg
Eccentricity: 0.0014224
Arg of perigee: 264.8255 deg
Mean anomaly: 95.1288 deg
Mean motion: 14.01329924 rev/day
Decay rate: 3.52e-06 rev/day^2
Epoch rev: 16304
Checksum: 314

Satellite: MET-2/20
Catalog number: 20826
Epoch time: 93320.47980517
Element set: 711
Inclination: 82.5249 deg

RA of node: 315.2181 deg
Eccentricity: 0.0011921
Arg of perigee: 288.0238 deg
Mean anomaly: 71.9627 deg
Mean motion: 13.83563968 rev/day
Decay rate: 5.2e-07 rev/day^2
Epoch rev: 15834
Checksum: 308

Satellite: MET-3/4
Catalog number: 21232
Epoch time: 93320.51833216
Element set: 615
Inclination: 82.5409 deg
RA of node: 319.9466 deg
Eccentricity: 0.0013471
Arg of perigee: 2.5209 deg
Mean anomaly: 357.5653 deg
Mean motion: 13.16456371 rev/day
Decay rate: 4.3e-07 rev/day^2
Epoch rev: 12337
Checksum: 280

Satellite: NOAA-12
Catalog number: 21263
Epoch time: 93315.68793624
Element set: 816
Inclination: 98.6427 deg
RA of node: 343.0215 deg
Eccentricity: 0.0013434
Arg of perigee: 143.1680 deg
Mean anomaly: 217.0407 deg
Mean motion: 14.22331177 rev/day
Decay rate: 1.76e-06 rev/day^2
Epoch rev: 12961
Checksum: 285

Satellite: MET-3/5
Catalog number: 21655
Epoch time: 93320.38880675
Element set: 612
Inclination: 82.5551 deg
RA of node: 267.0163 deg
Eccentricity: 0.0014334
Arg of perigee: 12.2322 deg
Mean anomaly: 347.9178 deg
Mean motion: 13.16825934 rev/day
Decay rate: 4.3e-07 rev/day^2

Epoch rev: 10845
Checksum: 293

Satellite: MET-2/21
Catalog number: 22782
Epoch time: 93320.66678128
Element set: 211
Inclination: 82.5521 deg
RA of node: 14.8526 deg
Eccentricity: 0.0023798
Arg of perigee: 100.3379 deg
Mean anomaly: 260.0455 deg
Mean motion: 13.82991168 rev/day
Decay rate: 3.3e-07 rev/day^2
Epoch rev: 1071
Checksum: 288

/EX

End of Ham-Space Digest V93 #91

